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AN ANNOTATED LIST OF THE DISEASES OF WESTERN LARCH

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In the United States western larch (Larix occidentalis Nutt.) is native to Oregon, Washington, Idaho, and Montana. Its range extends northward from there into southeastern British Columbia, Canada.

Western larch has, until recent years, generally been considered an inferior species when compared with the more valuable conifers found in its range. Now that the virgin forests of these other species have been cut over to a large extent, the potentialities of western larch wood are becoming appreciated by the wood-using industries.

The increasing economic importance of western larch as a commercial tree species has developed an increasing demand for information on its diseases. A search of the literature revealed that only one disease of Larix occidentalis has ever been intensively studied. That study was made about 40 years ago on the dwarfmistletoe attacking it (23).[2] Published information on the other parasitic diseases of this tree is devoted almost exclusively to mycology; i.e., it is merely records of fungi observed to attack it. The present paper attempts to assemble, in brief annotated form, this information only on the dwarfmistletoe and those fungi reported to cause disease. The content of available literature indicates clearly that very little is known at present about the pathology of western larch. This situation strongly points to the necessity for pathological research, particularly in relation to forest management of the tree.

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[1] In cooperation with Utah State University, College of Forest, Range and Wildlife Management, Logan, Utah.

[2] Underlined numbers in parentheses refer to Literature Cited

SEEDLING DISEASES

Botrytis douglasii Tub. (?*B. cinerea* Fr.). Gray mold blight. Sometimes causes the leaves of the young terminal shoots to wither, curl, and die (4, 19). Found on seedlings throughout much of the range of larch (27).

Rhizinia inflata (Schaff.) Sacc. Rhizinia root rot. Observed infecting 3- to 5-year-old seedlings on burned areas in Idaho (22).

Thelophora terrestris Ehrh., and *T. caryophyllea* (Schaef.) Fr. Smothering disease. The fruiting bodies of the fungus smother seedlings by growing up around their lower stems and at times leaving only the seedling tip projecting (4, 25).

FOLIAGE FUNGI

Hypodermella laricis Tub. Needle and shoot blight. Known throughout most of the range of the tree (7, 17, 18, 27). Quite destructive in some years. Reproduction sometimes killed (9).

Lophodermium laricinum Duby. Needle blight. Distribution reported as Montana to Oregon (27), but fungus may not be present in western North America (7). Nothing has been published on the importance of this pathogen.

Melampsora medusae Thuem. Needle rust. Reported on larch from Montana and Oregon with *Populus* spp. as alternate hosts (26). Identity of this rust appears questionable and possibly it is *M. occidentalis* Jacks. (1, 3).

Melampsora paradoxa Diet. et Holw. (*M. bigelowii* Thuem.) (6). Needle rust. Present throughout the range of larch (1, 3, 27). Alternate hosts are *Salix* spp. on which the fungus can overwinter and thus maintain itself independently of the larch. Damage to larch is generally insignificant.

Meria laricis Vuill. Needle blight. Probably often mistaken for *Hypodermella laricis*. Recognized only in recent years as a parasite of western larch and reported only from Idaho (9, 17). Causes early-season browning of foliage and sometimes kills reproduction.

CANKERS

Aleurodiscus amorphus (Pers. ex Fr.) Rabh. Reported from Idaho and Montana (27). A weak parasite (12).

Aleurodiscus spinulosus Burt. A weak parasite. Collected in Idaho and Montana (27).

Aleurodiscus weirii Burt. A weak parasite. Reported only from Idaho (27).

Dasyscypha willkommii (Hartig) Rehm. European larch canker. Not known within the native range of western larch. Inoculations, conducted in the East, on test specimens of western larch demonstrated that it is susceptible to the fungus (11).

ROOT ROTS

Armillaria mellea (Vahl.) Quel. Honey mushroom, shoestring fungus, and several other common names. Common throughout the range of western larch (13, 15, 16, 27). Found on dying and dead trees associated with a typical rot of the roots. Occasionally occurs on the butt portions of tree trunks.

Fomes annosus (Fr.) Cke. Fomes root rot. Probably present throughout the range of western larch (27).

Sparassis radicata Weir. Sparassis root rot. Widely distributed (27). Confined to old trees; decay never extends into the trunk (24).

Poria weirii Murr. Yellow laminated root rot. Reported on western larch only in British Columbia (5).

DECAY FUNGI

Fomes nigrolimitatus (Rom.) Egel. Reported in 1914 causing decay in western larch (21); otherwise little is known about the fungus on this host.

Fomes officinalis (Vill. ex Fr.) Faull. (*F. laricis*). Quinine fungus. Causes a brown cubical rot of the trunk. Regarded as the most common and important heart rot in western larch throughout most of its range (2, 4, 15).

Fomes pini (Thore) Lloyd. Red ring rot. Causes considerable loss (2, 4). Very large swollen knots develop, and the decayed section of the trunk often becomes irregular in shape so that it appears somewhat cankered. Sometimes found in the roots of western larch (13).

Fomes pinicola (Swartz ex Fr.) Cke. Red belt fungus. Common on dead trees and stumps as a saprophyte. May occur occasionally on living trees (4, 8).

Fomes roseus Fr. The rose-colored conk. Causes a brown cubical rot; prevalence in larch not known (8).

Polyporus berkeleyi Fr. Reported as common and the cause of decay of the roots and butt (20). Seldom extends up the trunk more than a few feet.

Polyporus tomentosus var. *circinatus* (Fr.) Saryory & Maire. The fungus has been found on western larch in Idaho associated with basal fire scars (14).

Polyporus schweinitzii Fr. Velvet top fungus. Causes the red-brown butt rot. Widespread throughout the range of western larch (2, 4, 27).

Polyporus sulphureus (Bull.) Fr. The sulphur fungus. Causes a brown cubical rot. Widespread in its distribution (2, 4, 15). Prevalence in western larch not known.

Stereum sanguinolentum Alb. & Schw. Red heart rot. Reported as a root and butt rot of western larch in Idaho (27).

DWARFMISTLETOE

Arceuthobium campylopodum f. laricis (Engelm.) Gill (Razoumofskya laricis Piper). Present throughout the range of western larch and the only species of dwarfmistletoe known to infect the tree naturally (10). A very destructive parasite; probably causes greater losses than any other larch pathogen (23).

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